SAFR® Secure Access Solution Guide

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Note: Documentation pertaining to the macOS platform is no longer being actively maintained.

Contents

1 Secure Access Solution Guide

This solution guide describes how set up a fully functional door entry system. People enrolled in your SAFR system will be able to gain access through a door by being recognized by SAFR.

This guide is written for Windows users. Linux users can achieve the same functionality, but they need to use the Web Console and VIRGO instead of the Desktop Client & SAFR Actions GUI.

For simplicity's sake, this guide assumes that you're using a SAFR Cloud License. If you're using a SAFR On-Premises License, you'll also need to install and manage the SAFR Server.

1.1 Required Hardware and Software

1.1.1 Required Hardware

- One Android tablet for every entrance door you want secured. iOS tablets could also be used, although pose liveness detection would be used instead of RGB liveness detection. See the Mobile tab of SAFR System Requirements for recommended tablet specifications.
- One X-410 relay per entrance door you want secured.
- One PC that meets the minimum specifications needed to run the SAFR Desktop Client.

1.1.2 Required Software

- Install SAFR Mobile Client on every Android tablet you're going to use.
- Install SAFR Desktop Client Universal Edition and SAFR Actions on the PC. (SAFR Actions is included as part of the SAFR Desktop installer.)

1.2 Install SAFR Desktop Client and SAFR Actions

Download and install the SAFR Desktop Universal Edition installer for Windows from the SAFR Download Portal. The SAFR Desktop installer includes both the SAFR Desktop Client and SAFR Actions. Note that when you install SAFR Actions, both of the following are installed:

- Actions Relay Event Service (ARES) - A Java application that acts as an event listener that dispatches configured actions in response to events.
- SAFR Actions GUI - A GUI that helps users manage ARES.

1.3 Create Face Recognition Panels

Face recognition panels are mobile devices upon which the SAFR Mobile Client has been installed and configured. To create a face recognition panel on Android tablets, do the following:

1. Download and install the SAFR Mobile installer for Android from the SAFR Download Portal.
2. You'll get a pop-up dialog asking if you want to allow SAFR to take pictures and record video. You should allow SAFR to take pictures and record videos.
3. Enter your SAFR credentials when prompted.
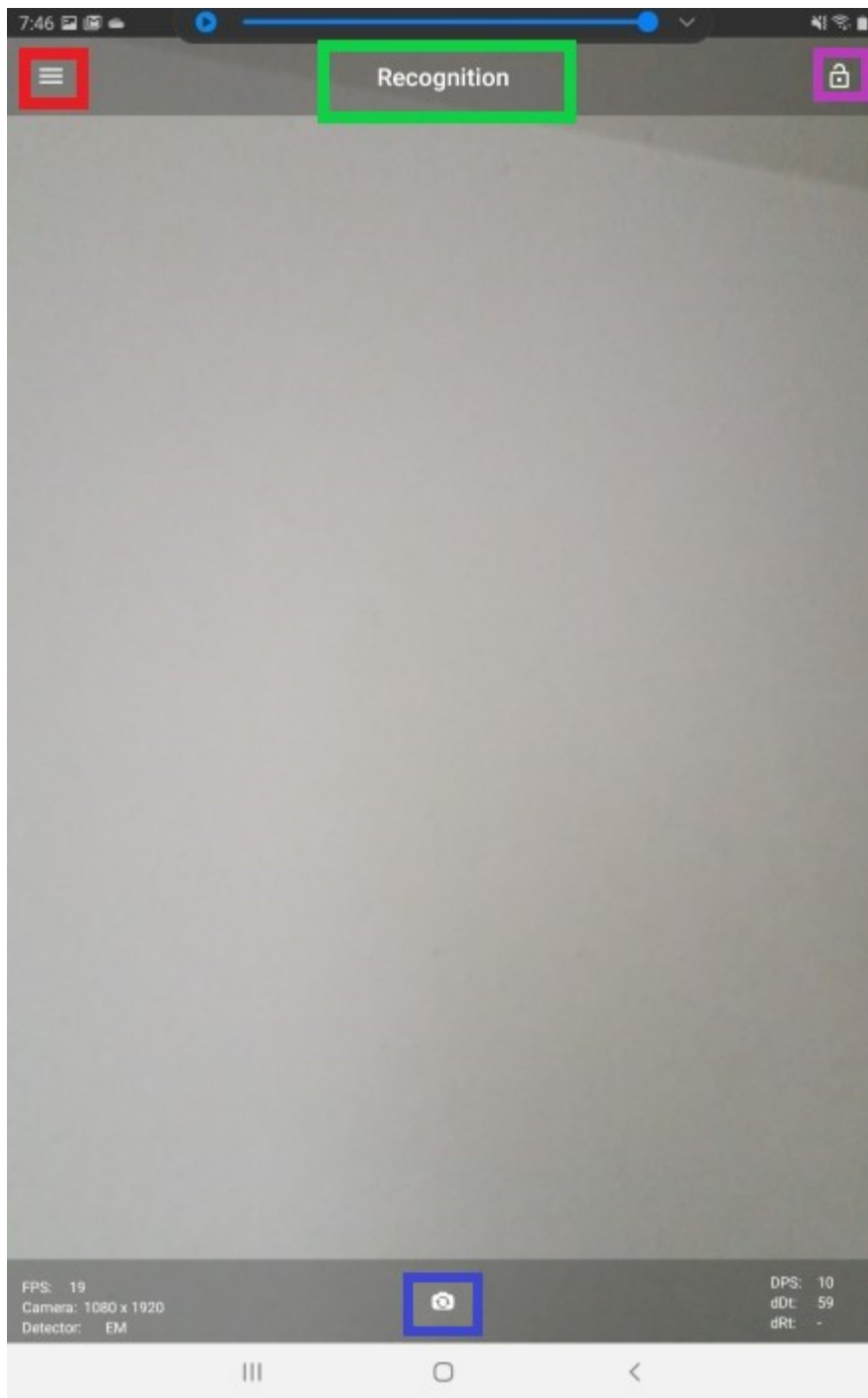
4. Tap on the Operator Mode (the text enclosed in the green rectangle) and select **Secure Access with RGB Liveness** from the pop-up menu.

5. Choose whether to use your tablet's default camera (i.e. the camera pointed at the tablet's operator) or its front-facing camera. You can do this by tapping on the camera selection icon (outlined by the blue rectangle). Because we want users to be able to see feedback from the tablet, select your tablet's default camera.

6. Configure your client's preference settings by tapping on the hamburger icon (outlined by the red rectangle), and then selecting **App Settings**. You'll be taken to the preference menus; you can change which preference menu you're configuring by selecting the appropriate icon along the bottom. Configure the following settings:

- **General Menu**:
  - **User Source** - Specifies the name by which this tablet will appear in SAFR. You should name each tablet based on the entrance it will be securing. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.
- **Detection Menu**:
  - **Enable Liveness Detector** - Enable.
- **Recognition Menu**:
  - **Detect Gender** - Disable.
  - **Detect Age** - Disable.
  - **Detect Sentiment** - Disable. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.
  - **Detect RGB Liveness Action** - Enable.
- **Events Menu**:
  - **Report events** - Enable.
  - **Listen For Event Replies** - Enable. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.
  - **Display Reply Message** - Enable. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.
- **User Interface Menu**:
  - **Enable Registration** - Disable. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.
  - **Show Video** - Enable. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.
  - **Average Age & Gender** - Disable. This setting can be exposed by clicking on the icon in the upper right corner and selecting **Show Advanced Preferences**.

7. To prevent unauthorized access to the tablet, lock the screen by tapping on the icon outlined by the purple rectangle.
8. Your tablet can now function as a face recognition panel.

You should create one face recognition panel for each entrance that you want secured.

1.4   Set Up Secured Entrances

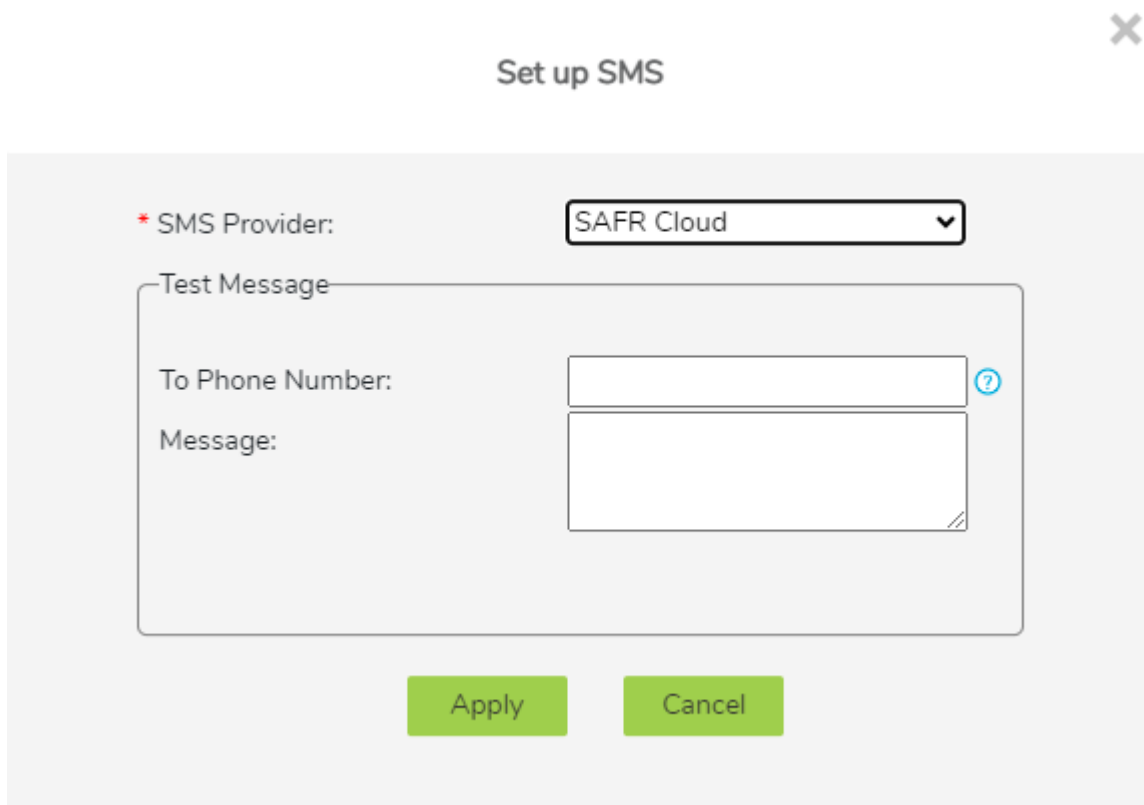For each doorway into your facility that you want to secure, do the following:

1. Connect an X-410 relay, as described in the X-410 relay documentation.
2. Create a face recognition panel, as described above.
3. Ideally, place the face recognition panel behind a glass window so that subjects can see feedback from the tablet, but they can't touch the tablet or interfere with its functionality.

1.5   Configure SAFR to Send Notifications

1.5.1   Configure SAFR to Send SMS Messages

Configure SAFR so that it can use a short message service (SMS) server to send SMS messages.

1. Go to the Web Console's Status Page.
2. In the *Configuration* section, click on **Set up SMS**. You'll be presented with the following dialog.

- **SMS Provider**: Your SMS Provider. You can select either *SAFR Cloud* or *Amazon SNS* from the drop-down menu. The *SAFR Cloud* provider is much easier to set up however, so you should probably select the default **SMS Provider**, *SAFR Cloud*.
- **Test Message**: Send a test message to verify that your SMS is properly configured.
  - **To Phone Number**: The phone number to which the test message will be sent. The number should be in the E.164 format. (e.g. +12065551313)
  - **Message**: The text message that will be sent.
3. Click **Apply**.
4. Verify that the specified phone received a test SMS message.

1.5.2   Optional - Configure SAFR to Send Emails

Optionally, you can also send email notifications.

If you want your system to send emails, you'll need to configure SAFR so that it can use an email server to send email messages.

1. Get an SMTP Server account you can use to send emails.
2. Go to the Web Console's Status Page.
3. In the *Configuration* section, click on **Set up SMTP Email Service**. You'll be presented with the following dialog.

Set up SMTP Email Service

- **Email Server**: The address of the SMTP email server.
- **Server Port**: The email server port. The default port for SMTP is 587.
- **Sender Email**: The email username of the SMTP account. (e.g. Susan.Johnson@gmail.com)
    - **Note**: If you use 2-Step-verification with a gmail account, you need to create and use an App Password on your Google Account. For more information, see https://support.google.com/mail/answer/185833?hl=en.
- **Password**: The password for the SMTP account.
- **From Email Address**: The email address that will appear on the "From" line. This feature isn't supported by all email servers; if this field isn't used then the *Sender Email* value is used for the "From" line.
- **Sender Name**: The display name on the "From" line. (e.g. Susan Johnson)
- **Test Email**: Configure the test email that will be sent after you finish setting up the SMTP email service.
    - **To Email**: The email address to which the test email will be sent.
    - **Subject**: The test email's subject.
    - **Body**: The test email's body.

7

4. Click **Apply**.
5. Verify that the specified email address received a test email.

1.6   Configure ARES

The actions you'll configure in this section will cause secured doors to electronically open when a registered person is recognized by an installed face recognition panel and passes an RGB liveness detection attempt.

When a subject fails to pass the RGB liveness detection, the subject doesn't receive any feedback. Instead, email and SMS notifications are sent to the specified recipient(s), and the door will remain locked.

Note: Make sure the SAFR Actions GUI is not running during steps 1-5 below.

On the PC where ARES is installed:

1. Delete the default SAFRActions.config file located at `C:\ProgramData\RealNetworks\SAFR\ares\config`.

2. Save SecureSAFRActions.config to `C:\ProgramData\RealNetworks\SAFR\ares\config`.

3. Rename the config file you just saved to *SAFRActions.config*.

4. Open *SAFRActions.config* for editing using **Notepad**.

    1. Right click on *SAFRActions.config* and select **Open with**
    2. Select **Notepad** if it appears in the list of the programs.
    3. If **Notepad** isn't listed, select **Choose another app**
    4. Select **More apps**.
    5. **Notepad** should be listed among the apps.

5. For each door you want to secure beyond the first, copy the highlighted text and paste it on the line below the highlighted text.

```
        ],
        "environment": "PROD",
        "rules": [
          {
            "event": {
              "actionId": [
                "rgbLiveness"
              ],
              "hasPersonId": true,
              "livenessConfirmed": true,
              "personType": [
                "staff",
                "exec"
              ],
              "site": "HeadOffice",
              "source": "Door1",
              "type": [
                "action"
              ]
            },
            "triggers": [
              {
                "actions": [
                  "python .\/scripts\/relay-x410.py \"192.168.1.2 1\""
                ],
                "daysOfWeek": [
                  "Mon",
                  "Tue",
                  "Wed",
                  "Thu",
                  "Fri"
                ],
                "reply": {
                  "message": "Welcome!"
                },
                "timesOfDay": [
                  {
                    "end": "23:00",
                    "start": "06:30"
                  }
                ]
              }
            ]
          },
          {
            "event": {
              "actionId": [
```

For example, if you wanted to secure a total of 3 doors, your **SAFRActions.config** should look like this:

```
{
```

```
"directory": "main",
"emailDef": [
  {
    "label": "livenessFailed",
    "message": "<h1>Someone failed a liveness test at camera: #S<\/h1>",
    "recipients": [
      "yourname@yourcompany.com"
    ],
    "subject": "Liveness Failed!"
  }
],
"environment": "PROD",
"rules": [
  {
    "event": {
      "actionId": [
        "rgbLiveness"
      ],
      "hasPersonId": true,
      "livenessConfirmed": true,
      "personType": [
        "staff",
        "exec"
      ],
      "source": "Door1",
      "type": [
          "action"
      ]
    },
    "triggers": [
      {
        "actions": [
          "python .\/scripts\/relay-x410.py 192.168.1.2 1"
        ],
        "daysOfWeek": [
          "Mon",
          "Tue",
          "Wed",
          "Thu",
          "Fri"
        ],
        "reply": {
          "message": "Welcome!"
        },
        "timesOfDay": [
          {
            "end": "23:00",
            "start": "06:30"
          }
        ]
      }
    ]
  },
  {
```

```
      "event": {
        "actionId": [
          "rgbLiveness"
        ],
        "hasPersonId": true,
        "livenessConfirmed": true,
        "personType": [
          "staff",
          "exec"
        ],
        "source": "Door1",
        "type": [
          "action"
        ]
      },
      "triggers": [
        {
          "actions": [
            "python .\/scripts\/relay-x410.py 192.168.1.2 1"
          ],
          "daysOfWeek": [
            "Mon",
            "Tue",
            "Wed",
            "Thu",
            "Fri"
          ],
          "reply": {
            "message": "Welcome!"
          },
          "timesOfDay": [
            {
              "end": "23:00",
              "start": "06:30"
            }
          ]
        }
      ]
    },
    {
      "event": {
        "actionId": [
          "rgbLiveness"
        ],
        "hasPersonId": true,
        "livenessConfirmed": true,
        "personType": [
          "staff",
          "exec"
        ],
        "source": "Door1",
        "type": [
          "action"
        ]
```

```json
      },
      "triggers": [
        {
          "actions": [
            "python .\/scripts\/relay-x410.py 192.168.1.2 1"
          ],
          "daysOfWeek": [
            "Mon",
            "Tue",
            "Wed",
            "Thu",
            "Fri"
          ],
          "reply": {
            "message": "Welcome!"
          },
          "timesOfDay": [
            {
              "end": "23:00",
              "start": "06:30"
            }
          ]
        }
      ]
    },
    {
      "event": {
        "actionId": [
          "rgbLiveness"
        ],
        "livenessConfirmed": false,
        "type": [
          "action"
        ]
      },
      "triggers": [
        {
          "actions": [
            "@smsSend livenessFailed",
            "@emailSend livenessFailed"
          ]
        }
      ]
    }
  ],
  "smsDef": [
    {
      "label": "livenessFailed",
      "message": "<h1>Someone failed a liveness test at camera: #S<\/h1>",
      "recipients": [
        "+12065551313"
      ]
    }
  ],
```

```
  "userId": "your_user_id",
  "userPwd": "y5Evq0qjArRTj8DX\/XbMTw=="
}
```

6. Start the SAFR Actions GUI.

7. Within the SAFR Actions GUI, within the *Rules* node, you'll see Items 1 through N, where N = the number of doors you want to secure. Those items tell your SAFR system to open the various doors that you're securing. (Each item corresponds to one of your doors.) You'll also see an Item N+1, which sends email & SMS notifications when somebody fails the RGB liveness test. We won't change any fields within Item N+1.
   For each Item 1 through N, set the following fields to the specified values:

   - **Item X** -> **event** -> **Source**: The *User Source* name you chose when you created the face recognition panels as described above.
   - **Item X** -> **triggers** -> **Item 1** -> **actions** -> **Item 1**: Update this field so it applies to the door secured by the face recognition panel specified by this item.
     - Change *192.168.1.2* to the URL for the X-410 relay responsible for opening the appropriate secured door.
     - Change the final *1* to the relayNumber responsible for opening the secured door. By default the relayNumber will be **1**.

8. Again within the SAFR Actions GUI, set the following fields to the specified values:

   - **userId**: Your username.
   - **userPwd**: Your password.
   - **smsDef** -> **Item 1** -> **recipients** -> **Item 1**: The phone number of whomever you want to receive SMS notifications. It should be in the E.164 format. (e.g. +12065551313) If you want more than 1 person to receive SMS notifications, do the following:
     1. Hover your mouse over **recipients**.
     2. Press the **+** button to create additional recipients.
     3. Set the newly created item(s) to the additional phone number(s).

9. If you chose to configure SAFR to send email notifications, set the following field within the SAFR Actions GUI:

   - **emailDef** -> **Item 1** -> **recipients** -> **Item 1**: The email address of whomever you want to receive email notifications. If you want more than 1 person to receive email notifications, do the following:
     1. Hover your mouse over **recipients**.
     2. Press the **+** button to create additional recipients.
     3. Set the newly created item(s) to the additional email address(es).

10. If you didn't configure SAFR to send email notifications, you should instead remove the references to emails within the SAFR Actions GUI.

    1. Within the **Item N+1** section of the **rules** section, (i.e. the last defined rule) hover your mouse over the **rules** -> **Item N+1** -> **triggers** -> **Item 1** -> **actions** -> **Item 2** field. Press the **-** button. This should make the key whose value was *@emailSend livenessFailed* disappear.
    2. Hover your mouse over the **emailDef** field, and press the **-** button. This should make the entire **emailDef** section disappear.

11. At the top of the SAFR Actions GUI, choose **File** > **Save** to save your changes.

Note: Make sure the system clocks on the PC and the Android tablets are within a few seconds of each other. If the system clocks differ by more than a few seconds, events may not trigger.

1.7 Register Personnel

1.7.1 Register a Person Into SAFR Using an Android Tablet

To register a person using an Android tablet, do the following:

1. Open the SAFR Mobile Client.
2. Tap on the Operator Mode (the text at the center of the ribbon along the top of the screen) and select **Registration Kiosk** from the drop-down menu.
3. Show the subject's face to the tablet's camera and wait for a purple oval to appear around the face. You should also see the text "Tap face to register" below the face.
4. Enter the subject's name, select *noconcern* for the **ID Class**, and tap **Register**.
5. Set the newly registered person's **Person Type** to either *Staff* or *Exec*.
    1. Enter the Person Directory by tapping on the hamburger icon in the upper left corner, and then selecting **Enrolled People**.
    2. Tap the face image of the newly registered person.
    3. Tap **Edit** in the upper right corner of the screen.
    4. Change the **ID Class** field to *No-Concern*.
    5. Change the **Person Type** field to either *Staff* or *Exec*.
    6. Tap **Save** in the upper right corner of the screen.
6. If this Android tablet is going to be used to secure an entrance, change the Operator Mode back to **Secure Access with RGB Liveness**.

1.7.2 Register a Person Into SAFR Using a Photo

To register a person from a photo, do the following:

1. Open the SAFR Desktop Client.
2. Navigate to the People Window by selecting **People. . .** from the **Tools** drop-down menu.
3. Click the **Add face** button near the top of the People Window.
4. Select the photo image located on your hard drive.
5. Any photo that has sufficient quality for recognition will show a purple oval around the face with the option to click and add a name. Enter their name when prompted.
6. Within the People Window, double click on the facial image of the newly registered person.
    1. Change the **ID Class** field to *No-Concern*.
    2. Change the **Person Type** field to either *Staff* or *Exec*.
    3. Click on **Save Changes**.

Note: It's very helpful to use as high quality a photo as possible.

1.8 Test Your Secure Access System

To test the secure access entrances that you have just set up, do the following:

1. Show your face to a face recognition panel that's being used to secure an entrance into your facility.
2. A purple oval should appear around your face, and nothing else should happen. (Right now you're not registered with SAFR, so the secure access system shouldn't let you enter the facility.)
3. Register yourself with SAFR as described above.
4. Hide your face from all face recognition panels.
5. Show your face to a face recognition panel that's being used to secure an entrance into your facility.
6. Upon recognition, the face recognition panel should display a "Welcome!" message and the door should electronically unlock.

Now test the notification system when someone fails the RGB liveness test.

1. Use your tablet's camera to take a photo of your face.
2. Display the photo of your face fullscreen on your tablet.
3. Hold up your photo to a face recognition panel that's securing an entrance.

4. The secured entrance should remain locked. In addition, you should receive an SMS notification warning you that someone failed a liveness test. If you chose to configure SAFR to send email notifications, you should also receive an email notification.